

Critical Locus Measurement for the Binary Difluoromethane (R-32) + Propane (R-290) Mixture

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The vapor-liquid coexistence curves at constant composition of the binary difluoromethane(R-32) + propane (R-290) near the mixture critical point were measured by the observation of the meniscus disappearance. The experimental uncertainties of temperature, density, and composition measurements were estimated to be within 10 mK, 0.2 %, and 0.05 mass %, respectively. The critical temperatures and critical densities of 90 mass% R-32 + 10 mass% propane and 70 mass % R-32 + 30 mass% propane were determined from the saturation densities along the coexistence curve in the critical region. Based upon the experimental results, a correlation of the critical locus is proposed as a function of composition. This correlation can predict the azeotropic critical temperature for the R-32 + propane mixture.